

Message Text

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ACTION OES-09

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R 110112Z JUL 78
FM AMEMBASSY TOKYO
TO SECSTATE WASHDC 9463
DOE WASHDC
DOE GERMANTOWN MD
INFO USICA WASHDC
AMEMBASSY MANILA
AMCONSUL HONG KONG
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FOR OES

MANILA FOR E/C COUNSELOR AND ICA

DEPT PASS USAID OFFICE WASHDC

DEPT PASS TO NATIONAL ACADEMY OF SCIENCES, DR. VICTOR
RABINOWITCH

E.O. 11652: N/A
TAGS: TECH, ENRG, RP, JA
SUBJECT: A LIMITED ASSESSMENT OF ENERGY R&D POTENTIAL
IN THE PHILIPPINES

REF: A. TOKYO 10512, B. STATE 162740

1. AT THE INVITATION OF ICA MANILA, AMEMBASSY TOKYO
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SCICOUNS SPENT A WEEK IN THE PHILIPPINES, PRIMARILY TO
PARTICIPATE IN A SEMINAR ON INTERNATIONAL INTERDEPENDENCE
FOR YOUNG FILIPPINO PROFESSIONALS (REF. A). VISIT PROVIDED
OPPORTUNITY TO MEET WITH GOP OFFICIALS RESPONSIBLE FOR
POLICY AND R&D AND TO INSPECT R&D FACILITIES TO A LIMITED
EXTENT. IN VIEW OF FORTHCOMING VISIT TO MANILA OF DOE
REPRESENTATIVES (REF. B) THIS REPORT IS PROVIDED FOR

BACKGROUND, BUT SHOULD NOT BE CONSIDERED COMPREHENSIVE
IN VIEW OF LIMITED TIME AVAILABLE TO SCICOUNS OUTSIDE
OF SEMINAR RESPONSIBILITIES.

2. THROUGH ADVANCE NOTIFICATION OF PHILIPPINES SCIENCE
COUNSELOR IN TOKYO, NATIONAL SCIENCE DEVELOPMENT BOARD
OF PHILIPPINES WAS AWARE OF SCICOUNS' PLANS AND PROVIDED
ESCORTS AND TRANSPORTATION TO FACILITIES VISITED. FIRST
STOP WAS AT NSDB HEADQUARTERS LOCATED IN METRO MANILA
SUBURB OF BICUTAN, WHERE SCHEDULE WAS ARRANGED AND
BRIEFING GIVEN ON NSDB RESPONSIBILITIES AND ACTIVITIES.
NSDB IS "HOME" FOR FILIPPINO SCIENCE COUNSELORS ABROAD.
IT IS LARGELY RESPONSIBLE FOR SCIENCE EDUCATION. IT
OPERATES FOLLOWING MAJOR AGENCIES:
--NATIONAL INSTITUTE OF SCIENCE AND TECHNOLOGY
--FOREST PRODUCTS RESEARCH AND INDUSTRIES DEVELOPMENT
COMMISSION (FORPRIDECOM)
--PHILIPPINE INVENTORS COMMISSION
--FOOD AND NUTRITION RESEARCH INSTITUTE
--PHILIPPINE TEXTILE RESEARCH INSTITUTE
--COMMISSION ON VOLCANOLOGY
--NATIONAL POLLUTION CONTROL COMMISSION
BROCHURES DESCRIBING NSDB PROGRAMS WERE GIVEN TO SCICOUNS.

3. NEXT PLACE VISITED WAS DEPARTMENT OF ENERGY, LOCATED
ON GROUNDS OF FORT BONIFACIO MILITARY RESERVATION IN
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METRO MANILA SUBURB. DEPARTMENT OF ENERGY IS ELEVATED
ADMINISTRATIVE UNIT OF GOP FORMERLY CALLED ENERGY
DEVELOPMENT BOARD. CONTACT AT ENERGY DEPARTMENT WAS
DR. ERNESTO N. TERRADO, PROGRAM MANAGER, BUREAU OF
ENERGY DEVELOPMENT, WHO HAS RESPONSIBILITY FOR SOLAR EN-
ERGY DEVELOPMENT AND WHOSE OFFICE IS LOCATED IN NEW
BUILDING CALLED "SOLARLAB". TERRADO REVIEWED EMERGING
SOLAR PROGRAM IN HIS COUNTRY AND PROVIDED COPY OF "THE
NATIONAL NONCONVENTIONAL ENERGY RESOURCES DEVELOPMENT
PROGRAM", A SUMMARY REPORT PUBLISHED IN JANUARY 1978
BY PDOE.

4. SOLAR FACILITIES OF BUILDING WERE INSPECTED. ONLY
UNIT OF SIGNIFICANCE WAS SOLAR AIRCONDITIONING
SYSTEM CONSTRUCTED OF COMPONENTS PURCHASED FROM ESAKI CO.
IN JAPAN. INSTALLATION WAS PERFORMED BY PDOE PERSONNEL.
UNIT HAS 56.7 SQ.METERS OF COLLECTOR AREA AND 2-TON
LITHIUM BROMIDE ABSORPTION REFRIGERATION UNIT. HOT WATER
IS STORED IN AN INSULATED TANK OF LOCAL DESIGN. COOLED
AIR IS CIRCULATED TO 72 SQ. METERS OF OFFICE SPACE IN
BUILDING. CONVENTIONAL MECHANICAL AIRCONDITIONER COOLS
REMAINING OFFICE SPACE. LPG IS BACK-UP ENERGY SOURCE

FOR SOLAR UNIT. ALTHOUGH INSOLATION RATES ARE MEASURED AND INTEGRATED TO OBTAIN SOLAR ENERGY INPUT, NO INSTRUMENTATION IS AVAILABLE TO MEASURE OVERALL ENERGY BALANCE AND CONSEQUENTLY NO DATA ARE AVAILABLE TO TRULY ANALYZE PERFORMANCE OF SOLAR UNIT OR TO COMPARE IT WITH MECHANICAL AIRCONDITIONER. SCICOUNS REVIEWED THIS DEFICIENCY WITH TERRADO, WHO POINTED OUT THAT SOLAR UNIT--FIRST OF ITS KIND IN PHILIPPINES--IS INTENDED TO BE DEMONSTRATION OF SOLAR ENERGY FOR GENERAL PUBLIC AND PROBABLY IS NOT COST-EFFECTIVE. HE AGREED, HOWEVER, THAT WITH UNIT IN PLACE AND OPERATING, IT WOULD BE WISE TO INSTRUMENT IT IF FUNDS COULD BE FOUND FOR THIS PURPOSE. COST OF PROCURED COMPONENTS WAS \$12,000. SCICOUNS NOTED THAT HE WAS QUITE

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MANILA FOR E/C COUNSELOR AND ICA

DEPT PASS USAID OFFICE WASHDC

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FAMILIAR WITH PARTICULAR COMPONENTS USED, SINCE SOLAR
HOUSE HAD BEEN CONSTRUCTED ADJACENT TO HIS HOME IN TOKYO
USING COMPONENTS ALMOST IDENTICAL TO THOSE IN SOLAR LAB.

HE AGREED TO FURNISH TERRADO WITH DATA ON PERFORMANCE OF TOKYO INSTALLATION. (FYI: REPORT ON TOKYO SOLAR HOUSE IS IN PREPARATION AND WILL BE SENT BY AIRGRAM TO INTERESTED AGENCIES).

5. IN SEPARATE CONVERSATION WITH JUNIOR ENGINEER AT SOLARLAB, IT BECAME APPARENT THAT HE WAS UNCERTAIN ABOUT LIMITED OFFICIAL USE

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HOW TO CALCULATE EFFICIENCIES AND ENERGY BALANCES AND THEREFORE DID NOT KNOW WHAT KIND OF DATA TO COLLECT. SCICOUNS PROMISED TO TRY TO OBTAIN A MANUAL FROM DOE WASHINGTON WHICH WOULD SPELL OUT HOW SUCH CALCULATIONS WERE PERFORMED.

6. TERRADO MENTIONED THAT DESIGN WAS UNDER WAY FOR SOLAR WATER HEATER FOR A COMMERCIAL HOTEL AND FOR AN ICE CREAM PLANT. ICE CREAM PLANT WOULD USE SOLAR HEAT TO DEHYDRATE SUGAR. COMPONENTS ARE TO BE PROCURED ABROAD--PROBABLY FROM JAPAN. DISCUSSIONS ARE ALREADY UNDER WAY WITH SANYO AND SHOWA ORGANIZATIONS.

7. OTHER UNITS INSTALLED ON ROOF OF SOLAR LAB INCLUDED TWO SMALL AGRICULTURAL DRIERS USING "APPROPRIATE TECHNOLOGY". PERFORMANCE OF UNITS IN DRYING HYDRATED SILICA GEL BEADS WAS BEING TESTED IN RATHER PRIMITIVE WAY. A SMALL LINEAR PARABOLIC COLLECTOR WAS ALSO INSTALLED BUT WAS INOPERABLE DUE TO FAILURE OF SUN-FOLLOWING MOTOR DRIVE.

8. SCICOUNS GAVE TERRADO NAS REPORTS ON METHANE GENERATION FROM ORGANIC WASTES, AND USE OF AQUATIC WEEDS. HE ALREADY HAD COPY OF NAS REPORT ON ALTERNATIVE ENERGY SOURCES FOR DEVELOPING COUNTRIES. HE EXPRESSED INTEREST IN SENDING STAFF MEMBERS TO SOLAR ENERGY TRAINING COURSES IN U.S. SPONSORED BY DOE AND ASKED FOR INFO ON ANY COURSES THAT MIGHT BE AVAILABLE.

9. A TWO-HOUR TRIP BY AUTO WAS MADE TO LOS BANOS CAMPUS OF UNIVERSITY OF THE PHILIPPINES. FIRST STOP WAS AT WORLD-FAMOUS INTERNATIONAL RICE RESEARCH INSTITUTE, WHERE MR. GUITERREZ OF ENGINEERING DEPARTMENT SHOWED SCICOUNS AND DEMONSTRATED A VARIETY OF FARM IMPLEMENTS DEVELOPED LIMITED OFFICIAL USE

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FOR RICE AGRICULTURE USING APPROPRIATE TECHNOLOGY. ONE ITEM PERTINENT TO THIS REPORT WAS SMALL-SCALE PYROLYZER

FOR RICE STRAW OR OTHER AGRICULTURAL WASTE WHICH COULD BE USED TO PRODUCE LOW-BTU GAS FOR CROP DRYING, ETC. UNIT WAS FABRICATED FROM TWO 55-GAL DRUMS WELDED END TO END. DEVELOPMENT HAD NOT BEEN COMPLETED.

10. REMAINDER OF VISIT TO LOS BANOS WAS SPENT AT FOREST PRODUCTS RESEARCH INSTITUTE OF FORPRIDECOM, WHERE DR. PANCRACIO BAWAGAN, RESEARCH SPECIALIST, WAS HOST. OF MAJOR INTEREST HERE WAS WORK ON GROWING GIANT IPIL-IPIL TREES (LEUCAENA LEUCOCEPHALA) FOR MANIFOLD APPLICATIONS. (THIS VARIETY OF LEUCAENA HAS BEEN IDENTIFIED BY NAS AS HAVING MAJOR POTENTIAL AS BIOMASS ENERGY SOURCE FOR DEVELOPING COUNTRIES). INSTITUTE HAS COLLECTED VARIOUS INDIGENOUS AND FOREIGN SPECIES OF IPIL-IPIL AND IS MEASURING GROWTH RATES AND HABITS, OPTIMIZATION OF PLANTING, AND USES. MOST INTEREST IS IN L. LEUCOCEPHALA, WITH GROWTH RATE PER HECTARE PERHAPS THREE TIMES THAT OF EUCALYPTUS. THIS VARIETY WAS INTRODUCED BY INSTITUTE IN PHILIPPINES USING SEEDS BROUGHT FROM HAWAII. LEAVES CAN BE USED AS FORAGE FOR ANIMALS AND IN FACT PHILIPPINES HARVESTS LEAVES FROM INDIGENOUS SPECIES, PELLETIZES THEM, AND SELLS THEM TO JAPAN FOR LIVESTOCK FEEDING. WOOD IS MAHOGANY-LIKE HARD-WOOD; CUT TREES CAN BE AND ARE USED FOR TELEPHONE POLES, FENCE POSTS, ETC. WHEN PLANTED ON ONE-METER SPACING, TREES FORM SUCH HEAVY SHADE THAT WEEDS ARE ELIMINATED. TREES REGROW FROM STUMPS. BAWAGAN SHOWED SCICOUNS SMALL GROVES OF TREES PLANTED ON INSTITUTE PROPERTY FOR EXPERIMENTAL PURPOSES. HE POINTED OUT THAT RELATIVELY HIGH DENSITY OF WOOD (0.59-0.60) MADE IT EXTREMELY ATTRACTIVE AS DIRECT ENERGY OR CHARCOAL SOURCE AND SAID (IN CONFIDENCE) THAT HE HAD PRIVATE VENTURE GOING WITH BANANA PLANTATION IN WHICH IPIL-IPIL WOULD BE COPLANTED WITH BANANA TREES AS FIRST LIMITED OFFICIAL USE

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EFFORT TO COMMERCIALIZE USE OF IPIL-IPIL ON LARGE SCALE. PROJECT IS TO BE ANNOUNCED SOON. HE NOTED THAT GIANT IPIL-IPIL DID NOT APPEAR TO BE ATTRACTIVE AT PRESENT FOR ELECTRICAL POWER GENERATION USE IN PHILIPPINES, SINCE

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NATIONAL POWER CORPORATION WAS CONCENTRATING ON GENERATING
PLANTS GREATER THAN 75 MWE IN CAPACITY, TOO LARGE FOR
AVAILABLE GROWING SPACE. (NOTE: THIS MAY BE AT
VARIANCE WITH ENERGY DEPARTMENT THINKING). COPIES OF
PERTINENT NAS REPORTS ALSO WERE GIVEN TO DR. BAWAGAN; HE
HAD NAS REPORT ON LEUCAENA.

11. DURING COURSE OF ICA SEMINAR, SCICOUNS MET AT LENGTH
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WITH GARY MAKASIAR, PLANNING DIRECTOR OF DEPARTMENT OF
ENERGY, FOR PRIVATE DISCUSSIONS AND SHARED PLATFORM WITH
HIM DURING SEMINAR SESSION ON ENERGY INTERDEPENDENCE.
MAKASIAR IS EXTREMELY ASTUTE AND WELL-INFORMED AND SHOULD
BE CONSULTED IN ANY FUTURE MEETINGS HELD ON ENERGY
DEVELOPMENT IN PHILIPPINES. HIS KNOWLEDGE OF ENERGY
SITUATION IN HIS COUNTRY IS IMPRESSIVE, AND HE HANDLED
ARGUMENTATIVE QUESTIONS FROM HIS YOUNG COMPATRIOTS WITH
SKILL AND CONVICTION.

12. IN PRIVATE CONVERSATION, MAKASIAH BROUGHT UP INTERESTING PROBLEM HE WAS EXPERIENCING IN TRYING TO PROCURE SMALL (LESS THAN FIVE MW) TURBINES FOR A NUMBER OF HYDRO PROJECTS BEING PLANNED UNDER AID AND NATIONAL AUSPICES. ALTHOUGH ENERGY DEPARTMENT HAD SELECTED CERTAIN SITES THROUGHOUT ISLANDS FOR SMALL HYDRO PROJECTS, ENTERPRISING PRIVATE COMPANIES FROM ABROAD (HE WOULD NOT IDENTIFY THEM EXCEPT TO SAY THAT A NUMBER OF COUNTRIES WERE REPRESENTED) WERE BESIEGING HIM WITH PROPOSALS FOR INSTALLING PLANTS AT OTHER SITES, FURNISHING DATA ON AVAILABLE HEAD, WATER FLOW, ETC. HIS ANSWER TO THEM HAS BEEN THAT HE WILL ENTERTAIN PROPOSALS FOR CONSTRUCTION OF DAMS AND HYDRO SYSTEMS IF PROPOSERS AGREE TO BE PAID IN PROPORTION TO ELECTRICITY ACTUALLY GENERATED OVER A REASONABLE PERIOD OF TIME TO BE NEGOTIATED, THEREBY PROVIDING IN EFFECT A PERFORMANCE WARRANTY. HE WAS FULLY AWARE THAT THIS MEANT THAT COMPANIES WOULD HAVE TO BEAR ALL FRONT-END COSTS, BUT HE SAID THAT THEY WOULD BE FULLY REIMBURSED, WITH PROFIT AND WITH INTEREST ON INVESTMENT, THROUGH HIS FINANCING SCHEME. HE NOTED RUEFULLY THAT HE HAD HAD NO TAKERS. WHEN ASKED IF HE WAS AWARE OF PRC EFFORT ON SMALL HYDRO SYSTEMS, HE SAID THAT GOP TECHNICAL MISSIONS HAD VISITED CHINA AND THAT HE PLANNED TO BUY THREE LIMITED OFFICIAL USE

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CHINESE TURBINES.

13. W.F. MCDONALD OF AID MANILA GAVE SCICOUNS CONSIDERABLE ASSISTANCE BY EXPLAINING STATUS OF AID LOAN AND GRANT FOR PHILIPPINES ENERGY DEVELOPMENT (REF.B) AND EVALUATION OF PERSONALITIES INVOLVED. HE ALSO FURNISHED COPY OF AID PROPOSAL AND RECOMMENDATIONS (AID-DLC/P-2288) WHICH LED TO AWARD OF LOAN AND GRANT. DOCUMENT ITSELF CONSTITUTES EXCELLENT SUMMARY OF ENERGY SITUATION IN PHILIPPINES.

14. ACTION REQUESTED:

FOR DOE--INFO ON ANY FORTHCOMING TRAINING COURSES ON ALTERNATIVE ENERGY SOURCES FOR LDC PERSONNEL (PARA 8). INFO ON AVAILABILITY OF MANUAL FOR CALCULATING EFFICIENCY AND PERFORMANCE OF SOLAR AND CONVENTIONAL AIRCONDITIONERS (PARA 5).

FOR ALL ADDRESSEES--EXPRESSIONS OF INTEREST, IF ANY, IN OBTAINING COPIES OF DOCUMENTS COLLECTED IN PHILIPPINES.

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